

REMARKS

Claims 2-4 and 11-20 are pending in this application and have been rejected.

Claims 2-4 and 11-20 have been maintained unchanged. Claims 2-4, 14 and 15 are independent.

Claims 2-4 and 11-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over German Patent Appln. No. 34 01 071 A1 to Vollert in view of U.S. Patent No. 5,903,292 to Scheffelin et al. and U.S. Patent No. 4,586,058 to Yamazaki. Applicants respectfully traverse this rejection and submit the following arguments in support thereof.

As explained below, all of the pending independent claims, claims 2-4, 14 and 15, provide for the step of pressing the ink bag with a pressing plate to cause ink to be discharged, either to cause at least in part the discharge of ink or to cause a quantity of residual ink to be discharged.

By way of example only, and not limitation, claim 2 describes a method of refilling a spent ink bag for use in an ink jet recorder. This involves the steps of providing the spent ink bag, the spent ink bag having an ink supply port that is selectively engageable with the ink jet recorder, positioning the spent ink bag, inserting an ink needle into the ink supply port of the spent ink bag, pressing the spent ink bag with a pressing plate, and discharging ink from the spent ink bag only through the port, the discharging being caused, at least in part, by the pressing of the spent ink bag with the pressing plate. After the discharging step comes a step of charging the spent ink bag only through the port with a specified quantity of ink.

Applicants' invention, according to claim 3, relates to a method of refilling an ink bag for use in an ink jet recorder, the ink bag having a flexible bag portion having an interior and being initially filled with ink through a first opening in the bag that is sealed after the ink bag is initially filled. This is done by providing an ink bag, the ink bag having a second opening that is

different than the first opening, the second opening being an ink supply port selectively engageable with the ink jet recorder, positioning the ink bag, advancing the tip of an ink needle into the interior of the flexible bag portion by passing the tip of the needle through the second opening, and pressing the ink bag with a pressing plate to cause a quantity of residual ink to be discharged through the second opening. The ink bag is charged only through the second opening with a specified quantity of ink.

Claim 4 involves a method of refilling an ink bag for use in an ink jet recorder, the ink bag being initially filled with ink through a first opening in the bag that is sealed after the ink bag is initially filled. This is done by providing the ink bag, the ink bag having, disposed on a line, the first opening and an opposing second opening that is an ink supply port selectively engageable with an ink jet recorder, positioning the ink bag, advancing a tip of an ink needle along the line and through the second opening in the ink bag, pressing the ink bag with a pressing plate to cause a quantity of residual ink to be discharged through the second opening, and charging the ink bag only through the second opening with a specified quantity of ink.

As described in claim 14, this invention also involves a method of refilling an ink bag for use in an ink jet recorder, the ink bag having a flexible bag portion having an interior and being initially filled with ink through a first opening formed by a part of the flexible bag portion and which first opening is sealed after the ink bag is initially filled. This method includes the steps of providing an ink bag, the ink bag having a second opening formed in a port attached to another part of the flexible bag portion and that is different than the first opening, the second opening being an ink supply port selectively engageable with the ink jet recorder, positioning the ink bag, advancing a tip of an ink needle into the interior of the flexible bag portion by passing the tip of the needle through the second opening in the port, pressing the ink bag with a pressing

plate to cause a quantity of residual ink to be discharged through the second opening, and charging the ink bag only through the second opening in the port with a specified quantity of ink.

Applicants' invention, as set out in claim 15, also relates to a method of refilling an ink bag for use in an ink jet recorder, the ink bag being initially filled with ink through a first opening formed by a part of the flexible bag portion and which first opening is sealed after the ink bag is initially filled. This method involves providing the ink bag, the ink bag having, disposed on a line, the first opening and an opposing second opening formed in a port attached to another part of the flexible bag portion, and the second opening is an ink supply port selectively engageable with an ink jet recorder, positioning the ink bag, advancing a tip of an ink needle along the line and through the second opening in the port, and pressing the ink bag with a pressing plate to cause a quantity of residual ink to be discharged through the second opening. It also includes the step of charging the ink bag only through the second opening in the port with a specified quantity of ink.

The Office Action **admits** that Vollert does not disclose discharging ink from a spent bag only through the port before charging the spent ink bag, as in claims 2 and 11. The Office Action also **admits** Vollert does not disclose pressing the spent ink bag to cause, at least in part, a quantity of residual ink to be discharged through the second opening or port, as in claims 16-20. The Office Action **admits** Vollert does not disclose that the ink bag is initially filled with ink through a first opening in the bag that is then sealed after the ink bag is initially filled, the first opening being different, disposed on a line, and opposite from the second opening, as in claims 3, 4, 14 and 15.

The Office Action then looks to Scheffelin to remedy Vollert's shortcomings, but **admits** that Vollert and Scheffelin together still fail to disclose a pressing plate for pressing the spent ink bag to cause, at least in part, discharging.

The Office Action looks to Yamazaki to remedy the deficiencies of Vollert and Scheffelin. However, Applicants respectfully submit that, for the following reasons, Yamazaki (1) is not properly combined with Vollert and Scheffelin and (2), even if combined, still does not suggest the claimed invention.

Yamazaki is not properly combined with Vollert and Scheffelin because Yamazaki only is concerned with removing bubbles from liquid that has exited the ink supply cartridge and flown to the recording head using a process that is comparable to a suction recovery operation. Yamazaki specifically states that "[a]n ink jet printing apparatus of the present invention has a function of **discharging bubbles which are introduced into ink supplied from a source of ink supply....**" (col. 1, lines 38-40) (emphasis added). So Yamazaki recognizes that there are bubbles in the ink contained in the ink supply cartridge (the present invention is concerned with avoiding having those bubbles in the first place).

Yamazaki discloses a pack compression structure having a pressing plate (element 84 in Fig. 4) to remove bubbles introduced into ink and thereby preventing clogging attributable to solidification of the ink in the nozzles. Describing this, Yamazaki states "[a] characteristic feature of the printer shown in FIG. 4 is the use of a compressing device, generally indicated by reference number 86, **for compressing the fresh ink in the cartridge 38 and thereby discharging bubbles out of the head.** As shown, the compressing device 86 comprises a lever 80, a pressing rod 82, and a pressing plate 84. a spring 88 is associated with the lever 80 for returning it after compression." (col. 3, lines 50-58) (emphasis added).

Those skilled in the art will appreciate from these passages that because Yamazaki speaks of removing bubbles from the ink jet head, Yamazaki implicitly recognizes that there are bubbles in the ink cartridge which flow to the head, and Yamazaki only presses the ink cartridge with the pressing plate 84 to cause ink having the bubbles to be discharged from the head.

However, Yamazaki does not relate to refilling an ink bag. Yamazaki's pressing plate 84 is used instead of a device for applying suction to the print head to draw the ink containing the bubbles out from that head (shown in one embodiment as suction pump 62 in Fig. 3) at the time of maintenance of the head at the home position.

Although Yamazaki has a pressing plate, that pressing plate is used in a different manner than the pressing plate of this invention. As discussed above, Yamazaki does not involve refilling an ink bag using a pressing plate to eliminate bubbles from the ink being stored in the refilled bag. Rather, Yamazaki uses the pressing plate instead of a suction pump for routine head maintenance to eliminate the bubbles that are present in the ink flowing from the ink cartridge to the print head (discharge recovery). Accordingly, Yamazaki is not concerned with pressing an ink bag in the manner of the present invention.

Applicants therefore respectfully submit that one skilled in the art would have no motivation to combine Yamazaki with the other cited references, and so would not be led to the present invention for refilling the ink bag.

Moreover, even if one skilled in the art were to combine these references, they would follow Yamazaki's teachings and only use a pressing plate, during routine printer operation, to press the ink bag to force bubble-containing ink from the print head. They would

not be led to modify the teachings of the other references in the manner that the Office Action contends.

For all the foregoing reasons, favorable reconsideration and withdrawal of this rejection are respectfully requested.

CONCLUSION

No fees are believed to be due in connection with the filing of this paper. Nevertheless, the Commissioner is authorized to charge any fee now or hereafter due required during the prosecution of this application to Deposit Account No. 19-4709.

Prompt and favorable consideration are respectfully requested.

Respectfully submitted,

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